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# Evaluation of a Group-Based Resilience Intervention for Typhoon Haiyan Survivors

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This study evaluated the impact of *Katatagan*, a culturally adapted, group-based, and mindfulness-informed resilience intervention developed for disaster survivors in the Philippines. The intervention aimed to teach six adaptive coping skills: harnessing strengths, managing physical reactions, managing thoughts and emotions, seeking solutions and support, identifying positive activities, and planning for the future. Pre- and post-intervention assessments were conducted with 163 Typhoon Haiyan survivors. Six-month follow-up assessments were obtained for 37 participants. Pre- and post-results showed improvements in participants' self-efficacy on all six coping skills. The 6-month follow-up revealed significant improvements in four of the six coping skills. Focus group discussions conducted at follow-up revealed that mindfulness, self-care, strengths, and reframing were some of the topics that were most memorable to participants. Among these, participants identified mindfulness as a skill that they continued to use. Participants also shared that they felt stronger because of the intervention and have shared what they learned with others in their communities.

**Keywords:** resilience, disaster, psychosocial interventions, Philippines, Typhoon Haiyan

Given climate change and environmental degradation, natural disasters have increased in regularity and intensity. Disasters can bring about destruction and the erosion of protective support systems in families and communities, thus causing pain and trauma. Although many survivors are able to recover after a disaster, there are those who experience difficulty in recovering and are at risk for developing post-traumatic stress disorder (PTSD). Meta-analytic studies report the prevalence of PTSD ranges from 19.5–28% among earthquake victims (Dai, Chen, Lai, Wang, & Liu, 2016), 11.5–16% among flood victims (Chen & Liu, 2015), and 15–24% across disaster victims in general (Utzon-Frank et al., 2014).

Mental health and/or psychosocial support (MHPSS) interventions are particularly salient among communities located in the Pacific Rim Ring of Fire, who regularly contend with earthquakes, tsunamis, typhoons, floods, and bushfires (Paton, 2009). In the past 100 years, nine of ten of the worst natural disasters occurred in Asia (Udomratn, 2008). Furthermore, in developing countries, the impact of natural calamities is exacerbated by poverty, environmental degradation, inadequate infrastructure, and the poor delivery of government social services (Porio, 2014).

A review of related literature on the consequences of disasters in Asia reports that PTSD affects from 8.7–57.3% of survivors, which is higher than that reported in other global studies. However, the author cites limitations on the rigour, timing, and sampling of the studies on PTSD in Asia (Udomratn, 2008).

Rather than wait for the onset of PTSD, Dryregrov and Regel (2012) suggest the need for early interventions to help survivors correct maladaptive thoughts and behaviours that may have enduring impact. The past years have seen an increasing number of MHPSS interventions designed to help survivors experiencing difficulties post-disaster. The Inter-Agency Standing Committee (IASC, 2007, p. 1) defined MHPSS as 'any type of local or outside support that aims to protect or promote psychosocial well-being and/or prevent or treat mental disorder'. The IASC guidelines recommend that MHPSS interventions should be sensitive to context and culture. Unfortunately, there is a dearth of evidence-based MHPSS interventions, particularly in developing Asian countries. This study provides an evaluation of a resilience intervention designed for Filipino survivors 6 months after Typhoon Haiyan.

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### Mental Health and Psychosocial Support During Emergencies

A review of literature on disaster interventions suggests five core principles that facilitate positive adaption following trauma: (a) promoting sense of safety, (b) promoting calming, (c) promoting sense of self- and community efficacy, (d) promoting connectedness, and (e) instilling hope (Hobfoll et al., 2007; Vernberg et al., 2008). A review of literature on intervention programs revealed that engaging survivors in distracting or enjoyable activities, the presence of caring helpers, and adequate provision of information promotes calm, reduces anxiety, and promotes recovery (Dryregrov & Regel, 2012). Given robust evidence on the protective role of social support, Dryregrov and Regel (2012) also advocate for the provision of 'structured social support'.

A basic intervention recommended by the World Health Organization during the emergency phase of a disaster is Psychological First Aid (PFA). PFA consists of three action principles: look, listen, and link. Look involves ensuring the safety of survivors and identifying those with most basic needs and serious distress reactions. Listen entails asking survivors about their needs and concerns, listening to them, and helping them feel calm. Link involves helping people cope with their problems by giving information and connecting people with loved ones and other sources of support (World Health Organization, 2011).

Although the majority of survivors do bounce back after a disaster, there are those who may experience difficulty in recovering (Powell & Penick, 1983). Thus, beyond PFA, the disaster mental health pyramid highlights the importance of focused, non-specialised interventions for survivors with mild-to-moderate difficulties beyond the emergency phase (IASC, 2007).

### Resilience Interventions

An emerging area in disaster research has focused on resilience among survivors. Resilience has been defined as the positive adaptation in the face of adversity (Luthar & Cicchetti, 2000). A pivotal model in the treatment of stress and trauma is the five-part model, which proposes an interaction between an individual's environment, thoughts, feelings, behaviours, and physical reactions (Williams & Garland, 2002). Its underlying principle is that individual cognitions affect emotional and physical reactions, which in turn shape behaviour. In turn, these internal factors are shaped by an individual's physical and social environment (Williams & Garland, 2002). The five-part model is the foundation of cognitive behavioural therapy (CBT), which has been used to treat trauma. However, De Terte, Becker, and Stephens (2009) suggest that the model can also be applied to building resilience. They highlight cognitive components of resilience, including optimism, problem solving, perseverance, and resourcefulness. They also identify adaptive behaviours and physical activities such as relaxation, rest, and sleep as being negatively related to adverse mental health outcomes (De Terte et al., 2009).

There is robust evidence that self-efficacy is also a key factor in resilience. Bandura (1997) defines self-efficacy as the belief that one has the power to produce desired effects through one's actions. Schwarzer and Warner's review (2013) reports that self-efficacy activates affective, behavioural, and motivational mechanisms in response to stress, and is negatively correlated with general distress and PTSD symptoms. Self-efficacy is also positively correlated with post-traumatic growth and other components of resiliency (Schwarzer & Warner, 2013). Research further suggests that coping self-efficacy mediates the relationship of trauma and resilience because it shapes threat appraisals, promotes adaptive actions, regulates stress and anxiety, and promotes perseverance in the face of adversity (Benight & Bandura, 2004).

Mohaupt (2008) argues that the traditional approach to resilience tends to focus too much on the individual and that there is a lack of research on the influences of community, social capital, and networks. Hence, an emerging perspective on resilience is to view it as a social competence that is shaped by protective factors and vulnerabilities in the environment (Luthans, Vogelgesang, & Lester, 2006). De Terte et al. (2009) suggest three levels of external support that should be considered in building psychological resilience: family support, community support, and societal support. They explain that family members are more likely to interact and build resources needed to survive post-disaster. On the other hand, community resilience (sense of community, collective self-efficacy, articulation of problems, social support, availability of physical and emotional resources) helps people prepare for and cope with disasters. Finally, societal institutions and the resources they provide influence psychological, family, and community resilience.

The importance of both internal and external resilience factors was affirmed in a study among Taiwan disaster survivors (Jang & Wang, 2009). Results reveal that personal resilience factors included acceptance, preparedness, self-reliance, and spirituality. Community-level factors include community culture, resource availability, social support, and an orientation to serving. Community cultural characteristics associated with resilience are frugality, diligence, self-reliance, responsibility, and persistence (Jang & Wang, 2009).

The five-part model has mostly been applied to CBT treatments for clinical conditions such as PTSD (De Terte et al., 2009). However, over the past decade, there has been an increase in literature on interventions utilising CBT principles in order to build resilience of survivors in the early post-disaster phase. For example, the National Center for PTSD's Skills for Psychological Recovery (SPR), uses CBT principles in order to build coping skills. These skills include gathering information and prioritising assistance, building problem-solving skills, promoting positive activities, managing reactions, promoting helpful thinking, and rebuilding social connections (Berkowitz et al., 2010).

Another intervention entitled My Disaster Recovery (MDR) is a self-help, web-based program that consists of six modules: seeking professional help, relaxation, social support, unhelpful ways of coping, self-talk, and trauma triggers and memories (Steinmetz, Benight, Bishop, & James, 2012). Although there is no evidence yet on the effectiveness of SPR, initial evaluations reveal MDR produces significant improvements in participants' worry and depression levels (Steinmetz et al., 2012).

The aforementioned interventions are commonly implemented individually. However, there is also growing literature on group-based CBT interventions in school settings. School-based interventions have been implemented to reduce symptoms of grief and post-traumatic stress among student disaster survivors in Tanzania (O'Donnell et al., 2014) and Palestine (Barron, Abdallah, & Smith, 2013), and in post-earthquake Athens (Giannopoulou, Dikaiakou, & Yule, 2006). School-based interventions have also been implemented for survivors of man-made disasters, including children who have experienced a factory explosion (Rønholt, Karsberg, & Elklit, 2013), as well as those exposed to community violence (Berger, Gelkopf, & Heineberg, 2012; Gelkopf & Berger, 2009).

### Katatagan: A Resilience Intervention for Filipino Survivors

MHPSS interventions are especially salient in the Philippines, which is struck by an average of 10 to 20 typhoons in a year (Conde, 2004) and considered the fourth most disaster-prone country in the world (UNISDR, 2015). The country's vulnerability to disasters is also exacerbated by the lack of mental health professionals and resources (Conde, 2004; World Health Organization, 2006).

A general principle in providing psychosocial support during emergency situations is to ensure they are contextually relevant and culturally sensitive (IASC, 2007). The subject of this article is a resilience intervention designed and implemented for Filipino survivors of super typhoon Haiyan. Reportedly the deadliest typhoon in history, the super typhoon hit the Philippines in November 2013 and killed over 6,000 people, affected 16 million, and displaced 4 million survivors (NDRMMC, 2014). A post-Haiyan study revealed that three months after the disaster, the basic survival needs of survivors in the hardest hit areas had not been fully addressed. Interviews with key informants revealed impediments to the recovery of Filipino survivors, including the lack of resources, the slow delivery of services, a lack of information on how to access relevant services, a lack of coordination among agencies and communities, and politics and turf wars among government institutions (Hechanova et al., 2015). However, key informants also identified protective factors such as Filipinos' strong faith in God and the positive disposition of survivors. Social support was also a critical protective factor among survivors. Family was often cited as a source of strength, and this included an extended family of relatives and other kin. Survivors also relied very much on the

support of neighbours and members of their community (Hechanova et al., 2015).

Despite the presence of protective factors, key informants reported the prevalence of PTSD symptoms among survivors. These included: somatic (body pains, headache, palpitations), emotional (anxiety, fearfulness, irritability), cognitive (guilt for surviving, inability to concentrate, hopelessness), and behavioural symptoms (inability to sleep, maladaptive behavior such as alcohol and drug-use). They also noted the impact of disasters on spirituality (questioning God, believing that the disaster was a punishment from God) of Filipino survivors (Hechanova et al., 2015).

To address the needs and vulnerabilities and harness the protective factors of survivors, a resilience intervention named *Katatagan* (the Filipino term for strength or resilience) was designed to support Filipino survivors (Hechanova et al., 2015). The intervention was meant to be a focused, non-specialised intervention that could be provided during the recovery phase (6 months post-disaster and onwards).

Given the scale of the disaster and in keeping with the collective nature of Filipinos, the *Katatagan* modules were designed to be facilitated in small groups (Hechanova et al., 2015). To address concerns that interactions centred on disaster experiences may create distress rather than foster recovery (Boasso, Overstreet, & Ruscher, 2015), *Katatagan* was not intended to be a means of debriefing or group therapy. Rather, its aim was to help survivors hone adaptive coping skills. Specifically, the goal was for survivors to be able to: (a) identify and cultivate their strengths, (b) manage their physical reactions, (c) manage their unhelpful thoughts and emotions, (d) identify regular and positive activities, (e) identify their current concerns, identify and seek support for solutions, and (f) identify goals and develop action plans to achieve these goals (Hechanova et al., 2015).

The *Katatagan* intervention consists of six modules: *Kalakasan* (finding and cultivating strengths), *Katawan* (managing physical reactions), *Kalooban at Isipan* (managing thoughts and emotions), *Kapikipakinabang na Gawain* (engaging in regular and positive activities), *Kalutasan at Kaagapay* (seeking solutions and support), and *Kinabukasan* (moving forward) (Hechanova et al., 2015).

The Finding and Cultivating Strengths module draws from positive psychology principles. The key element in the module is the enhancement of self-efficacy by identifying strengths using the metaphor of a *vinta* (a Filipino sea vessel; Hechanova et al., 2015).

The module Managing Physical Reactions aims to help participants manage their stress reactions through adaptive coping and mindfulness meditation skills. Bishop and colleagues (2004) defined mindfulness as a form of mental training that emphasises the capacity to maintain present moment attention with an attitude of curiosity, openness, and acceptance. Drawn from the empirically supported Inner Resources Stress program, the mindfulness

meditation exercises in Katatagan include practice on the mindful awareness of breath and body as well as tension release exercises (Waelde, 2015). Participants are taught to be aware of their breathing and their body and to recognise and let go of stress as it is occurring, rather than cognitively avoiding or elaborating on it. Tension release exercises use breath-focused attention to visualise tension flowing from the chest to the arms and out of the body (Waelde, 2015). Beyond this module, mindfulness practice is incorporated into the subsequent modules of Katatagan as opening exercises to promote calm and focus during the sessions and support ongoing mindfulness practice (Hechanova et al., 2015).

The module Managing Thoughts and Emotions promotes: (a) awareness of thoughts and how they shape emotional reactions, and (b) skills for decentring and reframing. Mindfulness practice in this module supports these aims because it promotes present moment awareness of the contents of thoughts and reactions to them. Mindfulness also promotes decentring or the ability to take an 'observer' perspective on the contents of one's own thoughts rather than identifying with them and regarding them as permanent (Hölzel et al., 2011).

In the module Engaging in Positive activities, participants are asked to share their post-disaster routines and identify some positive actions they can do to help themselves cope. The Seeking Solutions and Support module aims to help survivors prioritise and brainstorm solutions to their problems or concerns. Given the Filipino interdependent culture and reliance on social support, participants are asked to identify their sources of support through a social mapping exercise. Finally, the module Moving Forward encourages participants to dream and plan for the future. The intervention ends by asking participants to reflect on their journey to recovery to encourage meaning-making (Hechanova et al., 2015).

The Katatagan modules were designed using CBT principles and employed a structured approach similar to SPR (Berkowitz et al., 2010). However, a major difference between SPR and Katatagan is that the former begins with needs (identifying information and prioritising assistance) whereas the latter begins with the identification of strengths (Hechanova et al., 2015). Although SPR states that one of its learning outcomes is for participants to be able to maintain and improve on existing strengths, the identification of strengths is not explicit and is done in the context of identifying positive activities (Berkowitz et al., 2010). In Katatagan, the focus on strengths is done at the beginning as a stand-alone module to encourage survivors to reflect on their own protective factors in order to enhance their self-efficacy.

Another difference between the two interventions is that SPR has a stand-alone module on establishing healthy connections. The need for such a module is certainly understandable in an individualistic culture. However, in collectivist and interdependent cultures such as the Philippines where social connections are strong and a source of

resilience for survivors, designers did not think it was critical to have social connections as a stand-alone module. Instead, the concept is embedded in the problem-solving module where participants are asked to identify social connections that are relevant to possible solutions to their problems (Hechanova et al., 2015).

Both SPR and Katatagan have modules focused on managing physical reactions, including mindful meditation, which has been found to contribute to decreased hyperarousal and other posttraumatic symptoms (Waelde et al., 2008). However, Katatagan also embeds mindfulness practice in other modules in order to encourage practice (Hechanova et al., 2015).

Finally, although prayer and meditation is acknowledged in SPR as a possible means to manage reactions, Katatagan recognises that spiritual coping is the most common coping mechanism of Filipino survivors (Carandang, 1996; Ladrigo-Ignacio, 2011). A study on migrant workers suggests how Filipinos' spirituality influences their ability to survive difficult circumstances (Nakonz & Shik, 2009). The first is through the reappraisal or redefinition of the problem. Christians believe that God 'gives' problems with purpose and that purpose will benefit them in the long run. The second way is through seeking divine intervention. Praying to God to intervene in difficult situations is a very important coping strategy. This is reinforced by the belief that what one receives corresponds to the degree of faithfulness ('God helps those who help themselves'). Another coping mechanism is surrendering one's hardship to God and praying for the patience and wisdom to deal with the situation (Nakonz & Shik, 2009). The value of spirituality is seen in the closing exercise for each Katatagan module, where participants chose an activity such as praying and/or singing inspirational songs (Hechanova et al., 2015).

This study presents an evaluation of Katatagan when it was delivered to community members in a province in the Philippines that was devastated by Typhoon Haiyan. In evaluating the intervention, we focused on the outcome of coping self-efficacy. A unique aspect of self-efficacy is that it can be specific to a task or situation (Farchi, Cohen, & Mosek, 2014). Thus, measures of coping self-efficacy were based on the learning outcomes of each module. We hypothesised that participants' coping self-efficacy would significantly improve from pre- to post-training and that gains would be maintained over a 6-month follow-up interval. We further wished to examine the patterns of change for each of the six coping skills. Finally, the study sought to elicit feedback from participants to inform the design of the intervention. Specifically, we asked the following questions:

1. Would Katatagan participants' coping self-efficacy be improved after the intervention and be sustained over time?
2. What is the pattern of change in the six coping skills over time?



3. What are the reactions and insights of participants from the Katatagan program?

## Method

The study used a mixed-method design in two phases. In the first phase, quantitative data (pre-training, post-training, and follow-up test scores 6 months after the intervention) were obtained. Focused group discussions were conducted among a sample of participants during the follow-up period to obtain qualitative feedback on the intervention.

## Participants

Participants of the intervention were from three communities in Samar, a province in the Philippines that was severely affected by Typhoon Haiyan. The intervention was implemented as part of a 4-day mission trip that provided medical, dental, and psychosocial support services to community members. Conducted by Health Futures Incorporated (HFI), these missions were conducted six to seven months after Super typhoon Haiyan hit. All in all, there were nine missions conducted from May to November 2014, and for each mission, 2 days were devoted to the Katatagan.

Community members were informed through their local leaders about the scheduled mission trips and invited to sign up for the various services offered. A total of 163 community members volunteered to participate in Katatagan. In each session, participants were clustered in small groups of five to seven members (average of six). There were a total of 27 small groups that were facilitated by two facilitators each. There were a total of 46 facilitators, as some volunteered more than once. A majority ( $n = 144$ ; 88%) of participants were female. During the follow-up survey, 30% ( $n = 55$ ) of those who participated during the sessions held from May to June and who still lived in the area were invited to answer, but only 22% ( $n = 37$ ) were available (the rest of the participants could not be reached or had relocated). Of the 37, 18% were from community 1, 19% were from community 2, and 36% were from community 3. Participants in the follow-up study were predominantly women (92%). A *t* test to examine significant differences between the scores of all participants pre-training and those who responded to the 6-month follow-up survey found no significant differences between the two groups.

## Measures

Bandura (2006) recommended that self-efficacy scales be domain specific rather than generic, and thus we measured coping self-efficacy based on the learning objectives of each module. In keeping with Bandura's guidelines on constructing self-efficacy scales, we used the recommended wording of 'I can' rather than 'I will' to refer to expected knowledge and skills as a result of the intervention. However, we did not incorporate Bandura's rec-

ommended response options, which asks respondents to estimate the probability on a scale from 0–100% because we thought this response format was too reliant on formal concepts of probability for our intended use. Instead, we asked respondents to indicate their degree of agreement with the 'I can' statements, which we believed reflected their estimation of their perceived capabilities. Participants rated items using a 5-point visual analogue 'smiling' scale ranging from *strongly disagree* (long sad face) (1) to *strongly agree* (a very happy face) (5). All items were translated into Filipino. Means score for each self-efficacy scale were computed.

For the module Finding and Harnessing Our Strengths, the measure focused on participants' capacity to identify their sources of strengths during and in the aftermath of a disaster. Seven items were used, such as: 'I can identify my sources of strength' and 'I can identify personal characteristics that made me capable of handling challenges during and after the disaster'. Internal consistency (Cronbach alpha) of these seven items in the current sample was 0.78.

The measure for the module on Managing Physical Reactions described the ability to identify possible stressors through body awareness and the ability to practise the strategies learned, such as meditation and mindful breathing, to reduce stresses. Five items were used, such as 'I am able to describe my physical reactions or how my body responds to stress' and 'I know how to apply relaxation and meditation techniques when I am stressed'. Cronbach alpha was 0.77.

For the module on Managing Thoughts and Emotions, the measure assessed participants' ability to identify relationships between their thoughts and emotions and distinguish between helpful and unhelpful thoughts, as well as their ability to reframe negative thoughts as more positive. Six items were used, including 'I can explain how my thoughts, feelings, and behaviours are related to each other' and 'I can differentiate between helpful and unhelpful ways to manage strong and/or negative emotions'. Cronbach alpha was 0.74.

The measure for the module Positive Activities described participants' ability to identify positive and helpful activities that can improve mood and help regain a sense of normalcy. Three items were used, such as 'I can differentiate between my helpful and unhelpful activities'. Cronbach alpha was 0.61.

The measure for the module Seeking Solutions and Support described the participants' abilities to identify their available support systems and identify and prioritise needs and concerns. It is also assessed survivors' abilities to problem solve by breaking down their needs into smaller and more manageable parts and identify support systems that could help address their specific needs. Ten items were used, including 'I can name family members whom I can go to for help', 'I can identify what my concerns are', and 'I can identify the possible ways to resolve my problems'. Cronbach alpha was 0.84.

For the module on Moving Forward, the measure described the ability to identify specific and realistic goals for the future and to identify actions to move towards those goals. Two items were used, 'I have identified some goals that I want to achieve in the next 2–3 years' and 'I have identified the steps I can take to achieve my goals', with a Cronbach alpha of 0.64.

### Focus Group Discussion

Two focus group discussions (FGD) were conducted among 15 community members who participated in the May or June training sessions and were available at follow-up. These FGD sessions lasted for about an hour and were conducted in the local dialect (Waray). FGD facilitators had no knowledge of the Katatagan intervention design. Rather, the discussion focused on the material they retained from each of the modules, the impacts the training had on their ability to cope, and which skills they had continued to use. Two open-ended questions were posed: 'What was the most important learning you got from the program?' and 'Did the program help you? (How?)'

### Procedures

The resilience intervention was implemented across 2 days. Three modules were implemented per day for approximately six hours per day. Participants were randomly assigned to small groups with an average of six members. The intervention sessions were held in community halls in the selected sites. Facilitators were volunteer psychologists from the Psychological Association of the Philippines. The majority (82%) of facilitators were psychology faculty from various colleges and universities all over the country. The others were senior graduate students in counselling psychology, a professional counsellor, and a member of the clergy with a psychology graduate degree. Before conducting the Katatagan, training was provided that consisted of the nature of missions, the design of the intervention, facilitation guidelines, and evaluation of the modules. Facilitators were also provided with a detailed manual that contained possible scripts, instructions on activities, processing questions, and reading material on the modules. Facilitators were paired based on experience, and facilitators with less experience were teamed with more experienced facilitators.

This study utilised a longitudinal design. Surveys measuring coping self-efficacy were administered immediately before the start of the training and immediately post-training. Six months after the training, participants were contacted to see who would be willing to participate in follow-up surveys and FGDs. A psychology faculty based in the region facilitated the FGDs. The FGD facilitators were not involved in the intervention and did not know its contents or design.

Ethical considerations in conducting psychological research highlight the importance of ensuring decision-making capacity and informed consent, vulnerability and

protection against risks, informed consent, and anonymity (Ferreira, Buttell, & Ferreria, 2015). In keeping with this, prospective participants received an orientation about the program before it began in order to inform them about the nature of the project and any potential risks or benefits. The orientation was conducted by one of the facilitating psychologists and assisted by a member of the Health Futures, Incorporated (the non-government organisation that sponsored the mission). After the orientation, community members who were willing to participate indicated their interest and were assigned to small groups. All measures were translated into Filipino and facilitators read the items to participants who were illiterate. To ensure the anonymity of participants, they were asked to use code names in answering the measures. To avoid retraumatisation, participants were not asked to recount their traumatic experiences. However, to further safeguard the well-being of participants, two psychologists facilitated each small group. This practice enabled one person to be available should there be a need to address individual psychological needs of participants. Facilitators were instructed to refer participants to the nearest local psychiatrist or psychiatric nurse when necessary.

Written informed consent was obtained from participants of the follow-up study. The FGDs were recorded with the consent of the participants, but the names of the FGD participants were not included in the transcription. Ethics approval was obtained from the Ateneo de Manila University.

### Data Analysis

A within-subjects ANOVA was used to examine change from pre- to post-training and pre-intervention to follow-up. Mauchly's test of sphericity was conducted and results were not significant for all scores. Correlational analysis was conducted to examine the relationship of the specific coping self-efficacy scores. Effect sizes were computed using Cohen's *d*, which was calculated as the difference between the mean pre-training and follow-up scores divided by the pooled standard deviation.

Thematic content analysis was conducted with the FGD transcriptions. Two researchers examined the raw data and identified themes that emerged. A research assistant and a researcher then coded the data according to identified themes.

### Results

The within-subjects ANOVA revealed significant changes across time in the sum of the coping self-efficacy for all six resilience dimensions (see Table 1). The effect size of the pre-training and follow-up scores was medium ( $d = .69$ ). Although both the linear and quadratic trend were both significant, the quadratic trend was more dominant.

Prior to conducting the within-subjects ANOVA for each coping skill, correlational analysis was first performed to examine the relationship of the scores. Results reveal

**Table 1**

Mean Pre-Training, Post-Training, and 6-Month Follow-Up Results for Each Module

Module	Pre-training <i>N</i> = 163		Post-training <i>N</i> = 163		Follow-up <i>n</i> = 37		Within-subjects ANOVA <i>F</i>	Within-subjects contrasts		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>F</i> linear	<i>F</i> quad	Cohen's <i>d</i>
Total coping self-efficacy	23.96	2.20	26.56	2.34	25.61	2.48	19.06**	12.66**	28.34**	.69
Harnessing Strengths	3.95	0.57	4.33	0.53	4.37	0.45	11.62**	16.60**	5.11*	.82
Solutions and Social Support	3.91	0.55	4.23	0.52	4.32	0.43	11.11**	2.925**	1.39	.83
Managing Physical Reactions	3.84	0.68	4.21	0.65	4.24	0.46	4.76*	7.72**	2.31	.69
Managing Thoughts and Emotions	3.92	0.54	4.35	0.53	4.19	0.52	11.77**	3.06	25.52**	.51
Positive Activities	4.20	0.48	4.52	0.53	4.36	0.47	12.82**	1.82	32.10**	.33
Moving Forward	3.85	0.47	4.51	0.56	4.23	0.75	16.66**	7.56**	29.82**	0.60

Note: Cohen's *d* was computed based on pre-training and follow-up scores.*p* < .05, \*\**p* < .01.

correlations ranging from  $r = .22$  to  $r = .69$ , suggesting that although the coping skills were related, they were not multicollinear. The within-subjects ANOVA was conducted for each of the coping self-efficacy skill score. Subjects' contrasts revealed a more dominant linear trend for the modules on strengths, seeking solutions, and managing physical reactions. However, a quadratic trend appeared to be more predominant for the modules on managing thoughts, positive activities, and planning for the future.

Effect sizes were computed comparing pre-test and follow-up test scores after 6 months. Results reveal large effect sizes for the modules on seeking solutions and support ( $d = .83$ ) and harnessing strengths ( $d = .82$ ). Effect sizes were medium for physical reactions ( $d = .69$ ) and moving forward ( $d = .60$ ), and managing thoughts and emotions ( $d = .51$ ). The effect size was small for the module on positive activities ( $d = .33$ ).

### Qualitative Feedback

The focus group discussion revealed aspects of the intervention that were retained by participants. In the strengths module, participants remembered the importance of recognising their strengths: 'Remembering your strengths are important so you won't let your emotions rule you'. For the module on managing physical reactions, participants mentioned relaxation and meditation. Comments included: 'When you are experiencing stress, it's important to meditate so that your mind and body can rest', 'How to relax your mind' and 'Inhale and exhale when you feel stressed'. For the module on managing thoughts and emotions, participants cited the importance of positive thinking and reframing: 'The important thing is positive thinking so we won't be overwhelmed with problems and instead, we think about what we need to do to recover', 'Avoid being negative and try to be positive', 'I really liked thought replacing — it really helped when I used it'. Participants also remembered the importance of self-care from the module on positive activities: 'It is important to take

care of my body because it is what I use as a farmer'. Two concepts were memorable from the module that involved problem solving and the social mapping exercise. Said one participant: 'If you have a problem, think about a solution'. Another participant shared: 'I know whom I can turn to if I need help in my problem'. Finally, participants recounted drawing their dreams and goals in the final module, looking to the future.

When asked what they continued to practise that they had learned from the program, participants cited the mindfulness meditation techniques: 'I inhale and exhale'. Another shared that the breathing exercises allowed them better control of their thoughts and emotions: 'I don't worry or don't get nervous as much'. Still another shared that they felt 'lighter' whenever they did the mindfulness exercises.

In terms of the perceived impact of the program, participants reported that the sessions helped them: 'The sessions helped me face my problems, become more resilient'. Another shared feeling stronger after the intervention: 'I learned my strengths and I don't let my emotions overwhelm me even when there is a strong typhoon'.

Beyond the impact of the intervention on themselves, a participant also shared her efforts at helping others by sharing what they learned: 'I shared what I learned in the session with my family and neighbors — like how to solve problems and what to do in moments of weakness'. This was echoed by another participant: 'We re-echoed what we learned to our families, neighbors and community members, so they would also learn'.

### Discussion

This study sought to make a contribution to disaster science by evaluating a culturally adapted, group-based, and mindfulness-informed intervention to promote resilience. Follow-up surveys conducted 6 months after the intervention indicated that there were significant improvements in participants' coping self-efficacy on



identifying personal strengths, problem solving and seeking social support skills, managing physical reactions, managing unproductive thoughts and emotions, identifying activities to improve coping, and developing goals and action plans for the future. The coping skills with the greatest change scores and with significant linear trends were harnessing strengths, seeking solutions and support, managing physical reactions, and planning for the future.

Although the changes in scores across time were significant, scores on two coping self-skills (managing thoughts and emotions and positive activities) suggests weaker effect sizes and a significant quadratic trend. This suggests that the gains for these modules were not sustained and there may be a need to review these modules or reinforce these coping skills. The module on managing thoughts and emotions was the longest and most difficult of all the modules and may need to be simplified. The results suggest there may be a need for booster sessions to strengthen the ability to manage thoughts and emotions. The decrease in scores on engaging in positive activities may also be an issue on sustainability of behaviours. Participants may know what they need to do but may lack the will or even opportunity to perform these behaviours. Peer support sessions may be useful to remind participants of their commitments and encourage them to persevere.

The FGD results provided information on what was useful to participants. Although participants remembered something from each module, the most salient were those related to strengths, problem solving, and managing physical reactions. These results are encouraging because of previous works showing that adaptive coping is negatively related to post-traumatic symptoms and positively related to post-traumatic growth (Sattler, Assanangkorchai, Moller, Kesavatana-Dohrs, & Graham, 2014).

Given the dearth of evidence-based interventions, this study's contribution is that it provides preliminary and formative evaluation of a resilience intervention that might be used post-disaster. As a focused, non-specialised intervention, Katatagan may be provided after PFA to hone coping skills of survivors during the recovery phase (from 6 months onwards).

In keeping with IASC guidelines (2007), the study also highlights the value of adapting interventions to context and culture. Katatagan was conceptualised based on the needs, vulnerabilities, and protective factors of Filipino survivors. The intervention was delivered in the local language, used indigenous symbols, and considered the cultural values of survivors. However, as subcultural differences exist in the Philippines, facilitators need to be sensitive to and cognisant of the appropriate symbols and language to use in each region.

### Limitations and Recommendations for Future Research

Although the results provide encouraging indications of the intervention's effectiveness, there were several limita-

tions to the study. First, the lack of control group makes it difficult to conclude whether observed improvements were attributable to the program and not simply a function of natural recovery or responses to non-specific factors, such as group support. Future studies utilising an experimental design would provide more rigorous conclusions about the effectiveness of the program's specific treatment components.

Another limitation of the study was the small sample size of the follow-up data. A major constraint was the lack of resources to locate participants in far-flung communities and those who had relocated. This limited the generalisability of the effectiveness of the intervention.

The study focused only on coping self-efficacy and not actual behaviours or symptom outcomes. In addition, the self-constructed scales may also not have the psychometric properties of a standardised instrument for coping self-efficacy. Future studies could use standardised scales to measure other mental health outcomes, including stress, anxiety, depression, hopefulness, and PTSD, which are important in the aftermath of disasters (Norris et al., 2002). Although the effect size for the module on seeking social support was large, we also did not collect behavioural data about the impact of the intervention on participants' social support networks. Future research could include longitudinal assessment of effects on different forms of social support.

Participants in the intervention were predominantly women, so it is unclear if the encouraging results apply equally to men. Most studies show that posttraumatic stress symptoms are higher in women than men survivors (Jin, Xu, & Liu, 2014) and that women are more likely to seek help than men because men are more likely to experience self- and public stigma associated with psychological help-seeking (Topkaya, 2014). Given men's apparent vulnerability to help-seeking stigma, future research should address ways to encourage males to participate in post-disaster interventions. Furthermore, the lack of demographic information on participants is another limitation. Data on age, educational attainment, and so on could have allowed a more nuanced analysis of the attractiveness and outcomes of the intervention for different populations.

Despite the aforementioned limitations, the study provides encouraging results for a post-disaster intervention that can be delivered during the recovery phase. It suggests that small group interventions may be viable and practical solutions in disaster situations where there is a dearth of mental health providers. Moreover, it highlights the importance of considering context and culture when designing interventions to help survivors of disasters.

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